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Research paper

Mitigating risk of revenue leakages on the customer and vendor side in ecommerce sector

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Abstract

E-commerce is one of the rapidly booming sectors in India today, thanks to the rising internet user base and faster mobile penetration. The E-commerce industry is a complex ecosystem as it involves huge transaction volumes, complex procurement and logistics systems and reliance on new technologies for customer access and payment transactions. This complexity has given rise to frauds and revenue leakages, which is impacting the revenue for the ecommerce companies. Hence the major concern facing the Ecommerce sector today is how to mitigate the revenue loss. Very few studies have been done in academic literature in this area hence the objective of this study is to understand the sources of revenue leakage in the ecommerce sector and propose solutions for mitigating these revenue leakages. The study focusses on [2] major areas of revenue leakage viz. Customer side, Vendor side. The proposed revenue assurance model will be helpful to Ecommerce companies for detecting the sources of revenue leakages in the abovementioned areas and plugging the same thereby reducing losses. The study can also be helpful for consulting companies who are in the business of revenue assurance and fraud management for the ecommerce companies.

Keywords: *Ecommerce; Revenue Assurance; Revenue Leakages; Customer Side; Vendor Side.*

1. Introduction

The rapid urban sprawl brings the significant landscape E-commerce is one of the many industries which have observed an exponential growth since its inception. Along with skyrocketing growth rate, the competition in this sector has also become immensely intense. With every new entrant, a new technology comes into the industry and so does the pressure to be on par. The E-commerce ecosystem comes with its own set of complexities and challenges. Owing to the complexity of the organization processes, there is a likelihood that revenue loss occurs due to inefficiency in the execution of conditions agreed upon by customers. It becomes impossible to track such revenue losses due to the massive volume of transactions managed by E-commerce giants. The study of revenue assurance, particularly for E-commerce sector seems to be a daunting task. Many researchers recognized this gap and provided a foundation for fraud management and risk-mitigation. Duh, R. et al (2002) [1] presented a framework for analyzing control in online auction industry while using the control practices of eBay as an illustrative example. The paper covered three classes of risks prevalent in E-commerce – Privacy, Authentication and Denial-of-service attacks. In the article by EY (2016) [2], a detailed view of fraud-risk landscape of an e-commerce marketplace has been discussed. The paper has briefly provided solutions for such frauds by introducing their fraud investigation and
Dispute services. The paper by Deloitte (2016) [3] on mitigating risk, has described a fraud-risk landscape of an E-commerce market place. The Ernst and Young (2015) [4] paper on revenue assurance discusses major areas of financial leakages and few revenue assurance strategies to curb them. The KPMG (2016) [5] paper, as a part of its E-commerce –Logistics research has identified challenges and major risk areas which can lead to revenue losses. A study by EKN (2017) [6] has identified some of the financial implications of E-commerce Frauds. Leyde, J. [7] in her book on Ecommerce fraud gives a detailed analysis of E-commerce Frauds like phishing, account takeover, malware etc.
Objective of research: It was observed in the literature review that there was a dearth of literature available in the Ecommerce sector pertaining to sources of revenue leakage and solutions for revenue assurance regarding the same. Hence the objective of this study is to understand the sources of revenue leakage in the ecommerce sector in the areas of customer side and vendor side and propose a conceptual Revenue Assurance model to curtail these revenue leakages in these areas.

2. Literature review

2.1. Revenue assurance

As defined by Gartner IT Glossary [8], revenue assurance is "the application of a process or software solution that enables a communications service provider (CSP) to accurately capture revenue for all services rendered." As per Deloitte (2017) [9], "Revenue Assurance as a continuous endeavor aims at improving operational efficiency and ensuring that all possible revenue is collected". It helps in minimizing enterprise risk, optimizes operational performance

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while assuring revenue for services provided and future leakages. As mentioned by Pantigoso P and José B (2016) [10], the term Revenue Assurance, developed in mid-1990s, was coined in prospect to telecommunications companies. The simple idea behind revenue assurance was to "charge the client correctly". There seemed a lot of revenue wastage happening between the defined way and the actual charging of the billing system. Baamann K. (2007) [11] explains the term revenue assurance as a set of different techniques and methodologies used to identify and repair revenue losses thereby improving profits, revenues and cash flow without hampering the actual demand. A revenue assurance project can also increase efficiency by detecting un-billed or mis-billed customers and thereby maintaining revenue as mentioned in the report by Sjölin, M., Damjanovic, I. and Burman. (2010) [12]. Tele Management Forum has defined revenue assurance as a branch, grouped under enterprise risk management along with processes to ensure business continuity, security, fraud, audit and insurance.

2.2. Importance of revenue assurance in the ecommerce sector

As per the report by IBEF (2017) [13], India happens to be the fastest growing market with respect to Ecommerce sector with an expected growth rate of 44.7% for the years 2016-2020. One of the major reasons for this growth is the rising internet penetration amongst the Indian population. Because of the increase in number of users online, the task of security and fraud management has become very cumbersome. Expanding ecommerce market, higher flow of money online, and increasing online data transactions has raised the stakes of fraud at even higher rate which ultimately leads to revenue loss. Revenue maximization has always been the primary objective of any organization. The growth of the company is directly proportional to the quantum of revenue it converts. The ecommerce players face a different set of problems when it comes to revenue maximization. Absolute dependence on technologies, which keeps on evolving year on year have brought about barrage of gaps which has become the source of revenue leakages. As mentioned in the article by Bishnoi, A. (2017) [14], recent surveys indicate that because of fraud, businesses in North America expect to lose about 0.8% of their total revenue. In India the revenue loss due to frauds is comparatively lower in the range of 4-5%. As per the report of Global Fraud Index 2017 [15], there was an increase of 5.5% in total E-commerce frauds from quarter two of year 2016 to quarter two of year 2017. The same report also indicates that in quarter two of year 2017 alone, account takeover fraud rose by 45 percent, costing retailers $3.3 billion in losses. Businesses have recognized the need to curtail frauds while meeting ends with customers' expectations. As the market evolves, e-commerce companies will be the soft-target of intricate attacks. The attackers might be individuals, or could be a group. The industry competition will further worsen the scenario as new entrants might fight to get market leadership and may also resolve to create frauds for their competition. Hence, we feel there is need to understand in detail the revenue leakage in Ecommerce sector. Following research questions were formulated:

1) What are the sources of revenue leakage in the Ecommerce sector in the areas of customer and vendor side?
2) What is the impact of these revenue leakages on the ecommerce companies?
3) What are the probable solutions to Revenue Leakage in Ecommerce in the abovementioned areas?

3. Sources areas of revenue leakage in the ecommerce companies

This section deals extensively with the sources of revenue leakages in the Ecommerce companies, uses cases, impact of such revenue leakages on the company and probable solutions for mitigating such revenue losses. There may be many sources of revenue leakages as far as ecommerce companies are concerned. This study concentrates on the two major sources of revenue leakage in the following areas: (1) Customer side (2) Vendor side.

3.1. Revenue leakage on custom side

This sub section deals with four major sources of revenue leakage on the Customer side, viz Customer Acquisition, Order placement, Returns & Refunds and Payments, use cases, impact of such leakages to the company and probable solutions for resolving the same:

3.1.1. Customer acquisition

Use case 1: Poor conversion rates:
Wayfair, a home goods and furnishing merchant, considers customer acquisition over retention. As per Daniel McCarthy and Peter Fader (2018), Wayfair's customer acquisition cost is nearly $69 which is double than its competitor Overstock (online home goods retailer) which spends nearly $38 on customer acquisition. Overstock earns approximately $9 per customer acquired whereas Wayfair incurred a loss of approximately $10 per customer for 2017 Q1. [16].
Impact: As per analysis by McCarthy and Fader (2018), Wayfair loses approximately $10 for every new customer it acquires. The company is considered unprofitable as it lost approximately $200 million in 2016 due to customer acquisition cost leading to reduced overall company valuation. (Morell Alex, 2017) [17].
Probable Solution: To increase conversion rates, investments in customer retention should be increased with the help of loyalty programs which can increase the number of purchases from existing customers thereby saving expense on acquiring new customers. Loyalty programs is a method of encouraging existing loyal customers to return to shops by offering them personalized incentives like discounts, sample products, cashback etc. (Investopedia, 2018) [18].
Use case 2: Low repeat customer count:
Flipkart and Amazon, e-commerce merchants, spend Rs.845 per transaction as operational cost for which they receive mere Rs.175 net revenue per transaction per month. (Krishna, V. 2017). [19].
Impact: E-commerce giants like Flipkart and Amazon, lost Rs 2,306 crore and Rs 3,572 crore respectively, mostly because of the amount they spend on customer acquisition.
Probable Solution: To reduce the customer acquisition cost and increase count of repeat customers, retargeting method can be used. Retargeting also known as remarketing is a technology which uses cookies to anonymously follow the customers, once they visit the site. This cookie can capture the customer browser data like his searches, his browsing pattern etc. and help the marketer to push specific advertisements to these customers. (ReTargeter, 2018). [20].

3.1.2. Order placement

Customers today are baffled by the number of choices for a single product category and number of sites offering variety of products. The impulse buying behavior is also very much prevalent in the web environment (Zhang et al, 2016). [21]. This impulse buying behavior of consumers is targeted by catering clustered product selection.
Use Case 1: Shopping cart Abandonment/Order processed in cart but not purchased:
Customers tend to save products in cart assuming this might save time whenever they wish to purchase that product. Customers also do not complete the purchase because of slow/non-dynamic shopping cart button, compulsory registration process, high shipping cost etc. (Corr James, 2015). [22]. According to a Statista, average cart abandonment rate for the year 2006 was 59.8% and it increased to 69.23% in 2017(Statista (2018). [23].
Impact: Companies lost over $4 trillion worth of products abandoned in 2017 and every year companies lose nearly $18 billion of sales because of cart abandonment (Digital Marketing Depot, 2017). [24].

Probable Solution: To reduce shopping cart abandonment, all charges/fees on shipping must be mentioned clearly on the product pages itself as surprise charges during checkouts is considered the major reason for cart abandonment.
Use case 2: Extensive use of expired promotion codes:
An expired promotional code gives same experience as fake code, which leads to customer dissatisfaction. Similar customer will have a negative image about the brand from such an instance (Brandversity, 2017). [25].
Impacts: Customers dissatisfied from promo code offered can resort to complaining about the brand on different mediums which might indirectly turn up to loss in sales. Whilst offering a promo code or discount may drive customers to the site, but this kind of tactic indirectly reduces the margins of E-commerce owners. Further this may condition customers to never pay full again (Bustos Linda, 2018). [26].
Probable Solutions: To reduce use of expired promotion codes, an accurate database of coupon codes must be maintained. Creating your own company coupon landing page is another solution. Another solution is to disallow the coupon entry unless they do it through affiliate page or email campaign. Private promo codes can be issued to specific individual customers instead of sharing it with affiliates, on social networks etc. (Bustos Linda, 2018). [26].

3.1.3. Returns and refunds

A large margin of revenue loss for E-Commerce companies occurs due to Returns and Refunds. The cost involved in the entire process of returning the product and refunding the product price include delivery cost, seller's commission, payment fees depending on mode of payment etc. Returns and Refunds ensure customer loyalty but on the contrary it misses out Sellers Hygiene. As per Statistics by Invesp, 30% online products are returned as compared to traditional brick-and-mortar stores contributing only 8.89% product returns (Saleh, Khalid, 2018). [27] The cost of returns of delivery pushes the average cost by nearly 50 % because of two-way courier charges which is usually INR35 to 50 higher than forward logistics (Tanwar, P. and Doger, K, 2016). [28].
Use Case 1: Counterfeit product returns:
Customers can resolve to frauds by returning counterfeit products in lieu of original product by falsely claiming it as fake or defective. An Indian fashion retailer encountered such a case when some engineering students from Kanpur claimed for multiple refunds. They would replace original branded clothes with local replicas by simply stitching brand labels and then claim for refund form the retailer (Bansal, V. 2018). [29].
Impact: Such frauds account for 10% of the product returns and only 1% of returned products from customers are Genuine. (Bansal, V. 2018) [29].
Probable solution: Offer longer return deadlines as it would reduce the chances of customer returning the product. Typically, retailers allow returns within the period of 28-30 days of purchase. This creates a pressure on customers to initiate the return but if the return window is increased to 45-90 days customers tend to be attached to the product and would even cancel the return. A longer returning period increases leniency thus lead to fewer returns (Janakiraman, 2012). [30] Artificial intelligence and advanced technologies can be used for example some companies are using machine learning tools to predict user intent and to detect fraudulent /invalid addresses. Some companies are using 3D modelling systems for making size recommendations to customers. (Bansal, V. 2018). [29].
Use Case 2: Customer chargebacks /false claims:
Flipkart was duped by two Engineering students in Kota, Rajasthan for acquiring 152 expensive mobile phones by falsely claiming that they received empty boxes delivered (Livemint Epaper, 2016). [31].
Impact: Flipkart lost Rs.1.05 crore and 152 high-end mobile phones in the fraud case.
Probable Solutions: To reduce chargebacks, involving customers to leave a product review has also been beneficial. Review creates a perception about the product, which increases the credibility of the brand. Many times, product reviews from informed customers provides in-depth detail about the product features (Mo Tanveer, 2017). [32].
Use case 3: Used Product Return/Wardrobing:
Customers return the product after using it temporarily even if the item was not defective. The customers claim for a full refund on such used products incurring extra cost of delivery and product maintenance to e-commerce merchants. According to an Amazon seller, the used products /duplicate product returned from customer's cause's major loss to sellers (Amazon Services Sellers Forum, 2015). [33].
Impact: Flipkart estimates a 15-20% product return rate, specifically in fashion category. In online fashion industry, damaged product frauds account up to 10% of total product returns.
Probable solution: To reduce used product returns, e-commerce merchants should invest in AR/VR technology and provide an online trial room experience by 3D virtual assistance. Amazon, went ahead to acquire artificial intelligence (AI) 3-D body scanning startup Body Labs. This approach will create 3-D human body models, which shall offer trying on virtual clothes (PYMNTS.com, 2018). [34].
Use case 4: Absence of customer during delivery:
According to a discussion on Amazon Services (Amazon's seller forum), an Amazon seller has complained about extra shipping charges incurred in case of redelivery of product, due to absence of customer at the given location (Amazon Services Sellers Forum 2015). [35].
Impact: For Voonik (an Indian ethnic-wear online store), non-delivered products account nearly 15% of all orders. As per estimates, E-commerce companies pay 40% extra cost for the additional attempt for delivery as the single delivery attempt takes multiple rounds because of absence of customer at the provided delivery address (Livemint Ambre, A., 2016). [36].
Probable Solutions: To reduce returns based on delivery, the concept of lockers can be implemented. E-commerce majors outside India have their own lockers from where users can pick and drop deliveries. These lockers are set up at specific residential areas and corporate parks. The order is gathered at the nearest locker to customer's area and as it is delivered the customer is notified by an OTP.

3.1.4. Payments

Payment remains the most vulnerable aspect in e-commerce. The economy of e-commerce relies on electronic transactions to charge customers for products and services. Payment methods are divided into 2 as online and offline. Online payments can be made via credit card, debit card, payment gateway, e-wallets, 3rd party payment processors etc. Offline payments are majorly through Cash on Delivery (COD).
Use Case 1: Cash on Delivery (COD):
E-commerce industry in India is highly dependent on Cash-on-Delivery method of payment. According to Statista, Cash-on-Delivery totaled to 57% of all online shopping transactions in 2015. Even after digital movement and demonetization in India, the estimated number has just lowered down to 45% for 2020 (Statista, 2018). [37].
Impact: COD restricts the working capital flow. The cash takes a long time to reach the seller and longer in case of returns/refunds. Further the courier companies charge extra on COD orders. These reasons cumulatively increase expenses and lower down returns (Tanwar, P. and Doger, K, 2016) [28].
Probable solution: To reduce COD based payments, merchants should start capitalizing on orders for high involvement products like electronics, smartphones etc. This way customer will be encouraged to use digital payment method rather than Cash-on-Delivery.
Use Case 2: Friendly fraud:
Customers claim that they never made a purchase or that they did not receive the product or they received a damaged product. The

customer resolves to chargeback request to customer service associate and his request is resolved immediately. The customer keeps the purchased product and even gets a refund for it.
Impact: According to a survey, $6.7 billion revenue was lost in 2016 due to chargebacks out of which 71% losses were due to friendly frauds owing to $4.8 billion for e-commerce industry (Shukairy, A, 2016). [38].
Probable solution: To reduce Friendly Frauds, 3D secure authentication should be enabled.3D secure [3] Domain Server) involves [3] parties (ecommerce merchant, bank of the merchant, card issuers like VISA and MasterCard) during the verification. The buyer creates a password for his card and while making a payment the card is verified at Domain of all the [3] parties involved, hence providing an extra layer of verification and secure payment (Sage Pay 2016). [39].

3.2. Revenue leakages on vendor side

This sub section deals with four major sources of revenue leakage on the vendor side, use cases, impact of such leakages to the company and probable solutions for resolving the same. The four major sources discussed in this section are (a) Delivery/logistics (b) Drop shipping Vendors, (c) Fraudulent vendors (d) Legal constraints.
Use cases, Impact and probable solutions of revenue leakages on vendor side:

3.2.1. Delivery Logistics

A major chunk of revenue is lost in the delivery of products by vendors and retailers. The cost of delivering to specific locations may sometimes be even more than the product cost which might go unnoticed and over a long period lead to major revenue losses.
Use case 1: Product intentionally not delivered / misplaced.
Amazon encounters threats from its new sellers. A fraudulent seller would sign up on Amazon seller account using false identity. These sellers create a product listing of high relevance and offer those products for sale. Customer places the order and is promised to receive the product in few weeks. The fraud seller has already received the money and would not deliver the product to customer. In this case Amazon had to pay the refund cost (Mann, S. 2017). [40]
Impact: The merchant bears the cost of refunds in case of fraud sellers as they do not deliver the product but have already received cost of product from the buyer.
Probable Solution: Implement a central system to carry out real-time stock management which ensures maintenance and safety of products.
Use case 2: Delivery of defective/fake products:
E-commerce vendors resort to selling fake or counterfeit products and pose legal issues for merchants. Like Flipkart and its sellers were charged by US based athletic footwear brand Skechers, for selling fake products. This came out after raids on warehouses of sellers in Delhi and Ahmedabad found more than 15000 pairs of fake shoes. Also, Snap deal's authorized vendor was arrested for selling fake HP Cartridges (Mukherjee, S. 2017) [41]
Impact: Fake or defective product create a dent in Brand image of the e-commerce merchant selling the product and the manufacturer.
Probable solution: To guarantee that a reliable vendor is associated with the company, an all-round vendor background check should be done. Any fraudulent activity linked in past to a vendor must not be ignored.
Use case 3: Theft of goods from warehouses:
Inefficient security and product maintenance at warehouses and retailer stores also lead to theft of products causing an unwanted risk and revenue leak. High involvement products are the most vulnerable. Sometimes the theft is attempted by internal employees of the sellers' company (DMS 2015). [42].
Impact: In case of theft of goods from warehouses, e-commerce Company and the seller both bear the losses. This creates an imbalance in inventory if the theft goes unnoticed.
Probable solution: Implement a Blockchain based tracing of goods to ensure right product reaches the customer. Each product is given a tag and is tracked along the delivery process so there is no misplacement of product even by the vendor or the delivery man (Uhlmann, Sacha. 2017). [43] Merchandising audits can be done at regular intervals in the warehouses by using bar codes and other technology (DMS, 2015) [42].

3.2.2. Drop shipping vendors

Use case: Drop shipping vendors allow retailers to take orders from customers over their website and vendor would directly deliver the product to the customer. These vendors could deliver damaged products to meet the specified delivery time; this might also lead to wrong product delivery. Further, some vendors create legitimate sites and offer 1-2 months free services later as their products are listed they would intentionally deny commission to the retailer (Husak, S. 2014) [44].
Impact: Drop shipping can offer lesser margins. The quality of products may be compromised as owner is not involved in the warehousing and fulfilment of products.
Probable Solution: The best way to reduce expenses on drop shipping vendors is to implement in-house logistics and supply-chain system which will ensure higher margins and higher customer satisfaction.

3.2.3. Fraudulent vendors

Vendors target festive seasons to earn extra by duping the e-commerce merchants. They resolve to product replacement, falsely raise prices on products and even initiate return on behalf of customer.
Use case 1: Inadequate vendor background check:
Use case: Ramesh Kumar, Bengaluru, fraudulently claimed Rs. 1.5 lakh from Flipkart as a vendor by ordering items at fake addresses and replacing the products with its replicas and later returned the fake product claiming the customers have provided wrong address (The Times of India, 2015) [45].
Impact: Flipkart initially paid the amount claimed by Ramesh to the settle the issue. The Brands image was at stake as its seller was involved in Fraud which compromised on Company Policies. Loss of Rs.1.5 Lakh was noted in this case.
Probable Solutions: To identify fraudulent activities by vendors, conduct surprise checks to evaluate the warehouse conditions and stock maintenance. This kind of physical checks can help in predicting any fraudulent practices by the vendor (Deloitte whitepaper 2016). [46]

3.2.4. Legal constraints

E-commerce stores must abide by the compliances of area and regions. These constraints sometimes limit the approaches thereby reducing sales turnover.
Use case: UP and Uttarakhand Government in 2015 limited the selling of smartphones over 5000 in value from the E-commerce majors delivering the product from different states (Bailay, R., Sikarwar, and D.2015). [47]
Impact: Loss of sales owing to large population in UP and Uttarakhand.
Probable Solution: To reduce hassles of restrictions by government in case of interstate shipments, the e-commerce companies can build their own warehouses and suppliers in such states and fulfil the orders.

4. Conclusion

The objective of this study was to understand the sources of revenue leakage in the ecommerce sector and propose a conceptual Revenue Assurance model to curtail these revenue leakages. The study focusses on [2] major areas of revenue leakage viz. Customer side, Vendor side. The paper discusses the use cases of revenue leakages in the abovementioned areas, impact of such leakages to the company and probable solutions for resolving the same.

This study will be beneficial to the Ecommerce companies to identify areas of revenue leakage in their company and how it can be resolved. Secondly it can be beneficial to consulting companies to understand the sources of revenue leakages and fraud management in Ecommerce companies who can be part of their clientele. The paper can also be useful to solution developing companies who are into Artificial intelligence, fraud management solutions etc. to develop solutions to the various revenue leakage problems faced by the Ecommerce companies.

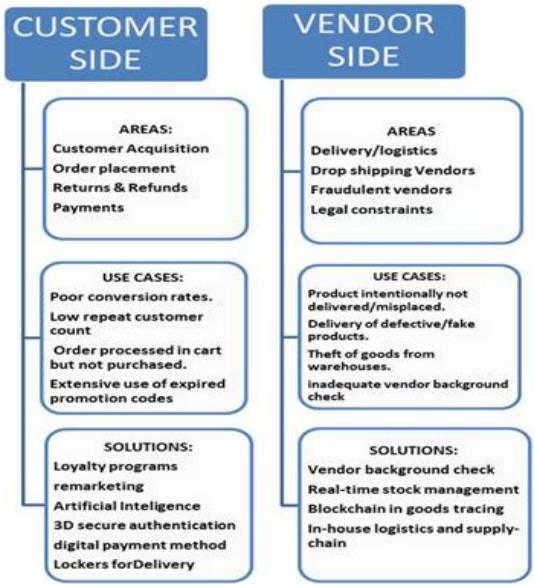


Fig. 1: Revenue Assurance Model for the Ecommerce Industry: Sources of Revenue Leakage Areas of Customer Side and Vendor Side Use Cases and the Probable Solutions for the Same.

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